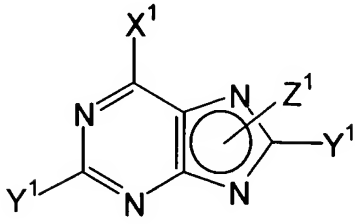
AMENDMENTS TO THE CLAIMS

1. (Original) A compound represented by the formula (I-1):



(I-1)

wherein

X^1 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom,

one of Y^1

is a group represented by the formula: R-C≡C-

wherein R is a hydrogen atom, a hydrocarbon group optionally having substituents, an aryl group optionally having substituents or a heterocyclic group optionally having substituents, and the other

Y^1 is a hydrogen atom, and

Z^1 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus,

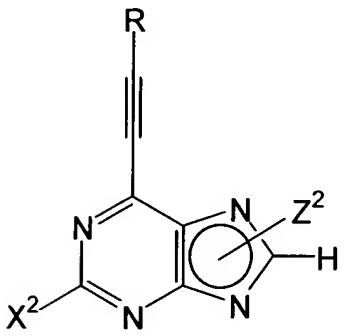
or a salt thereof.

2. (Original) The compound of claim 1, wherein X^1 is a halogen atom, R is a hydrogen atom or $Me_2(OH)C$-, and Z^1 is an amino-protecting group or a hydrogen atom.

3. (Currently amended) The compound of claim 1 ~~or 2~~, wherein X^1 is a chlorine atom.

4. (Currently amended) The compound of ~~any of claims 1 to 3~~ claim 1, wherein Z^1 is tetrahydropyran-2-yl, benzyl or a hydrogen atom.

5. (Original) A compound represented by the formula (I-2):



(I-2)

wherein

R is a hydrogen atom, a hydrocarbon group optionally having substituents, an aryl group optionally having substituents or a heterocyclic group optionally having substituents,

X^2 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom, and

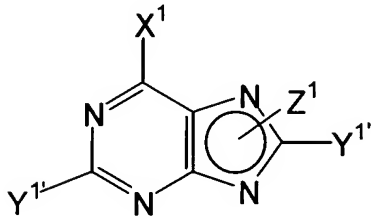
Z^2 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus,

or a salt thereof.

6. (Original) The compound of claim 5, wherein R is a hydrogen atom or $Me_2(OH)C$-, X^2 is an optionally protected amino group, and Z^2 is an amino-protecting group or a hydrogen atom.

7. (Currently amended) The compound of claim 5 ~~or 6~~, wherein Z^2 is tetrahydropyran-2-yl, benzyl or a hydrogen atom.

8. (Original) A production method of a compound represented by the formula (I-1'):



(I-1')

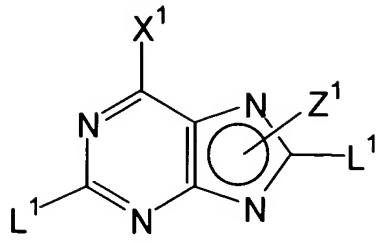
wherein

X^1 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom,

Z^1 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus, and

one of $Y^{1'}$ is a group represented by the formula: $Me_2(OH)C$-C≡C-, and the other $Y^{1'}$ is a hydrogen atom,

or a salt thereof, which comprises reacting a compound represented by the formula (II-1):



(II-1)

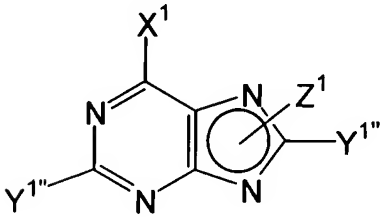
wherein

X^1 and Z^1 are as defined above, and

one of L^1 is a halogen atom, and the other L^1 is a hydrogen atom, provided that when X^1 is a halogen atom, L^1 is a halogen atom having higher leaving ability than the halogen atom represented by X^1,

or a salt thereof, with a compound represented by the formula (III): $Me_2(OH)C\text{-}C{\equiv}CH$, in the presence of a metal catalyst and a base (1).

9. (Original) A production method of a compound represented by the formula (I-1''):



(I-1'')

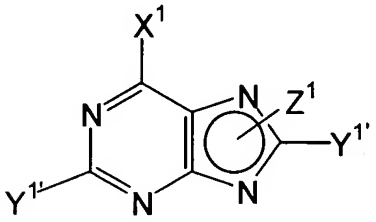
wherein

X^1 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom,

Z^1 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus, and

one of $Y^{1''}$ is a group represented by the formula: HC≡C-, and the other $Y^{1''}$ is a hydrogen atom,

or a salt thereof, which comprises treating a compound represented by the formula (I-1'):



(I-1')

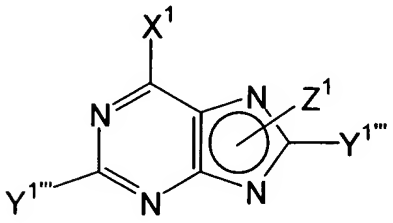
wherein

X^1 and Z^1 are as defined above, and

one of $Y^{1'}$ is a group represented by the formula: $Me_2(OH)C$-C≡C-, and the other $Y^{1'}$ is a hydrogen atom,

or a salt thereof, with a base (2).

10. (Original) A production method of a compound represented by the formula (I-1'''):



(I-1''')

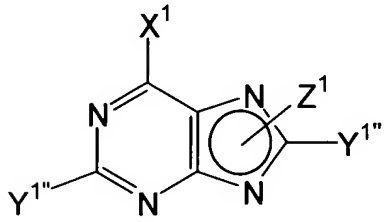
wherein

X^1 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom,

Z^1 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus, and

one of $Y^{1'''}$ is a group represented by the formula: A-C≡C-, wherein A is an aryl group optionally having substituents or a heterocyclic group optionally having substituents, and the other $Y^{1'''}$ is a hydrogen atom,

or a salt thereof, which comprises reacting a compound represented by the formula (I-1''):



(I-1'')

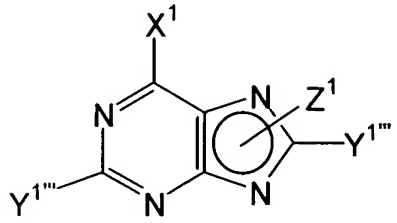
wherein

X^1 and Z^1 are as defined above, and

one of $Y^{1''}$ is a group represented by the formula: HC≡C-, and the other $Y^{1''}$ is a hydrogen atom,

or a salt thereof, with a compound represented by the formula (IV): A-X wherein A is as defined above, and X is a halogen atom, in the presence of a metal catalyst and a base (1).

11. (Original) A production method of a compound represented by the formula (I-1'''):



(I-1''')

wherein

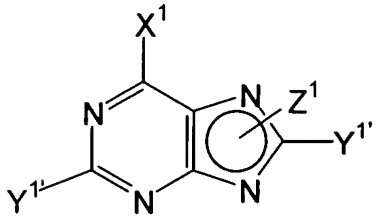
X^1 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom,

one of $Y^{1'''}$ is a group represented by the formula: A-C≡C-, wherein A is an aryl group optionally having substituents or a heterocyclic group optionally having substituents, and the other $Y^{1'''}$ is a hydrogen atom, and

Z^1 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus,

or a salt thereof, which comprises the following steps (a)-(c):

(a) a step of obtaining a compound represented by the formula (I-1'):



(I-1')

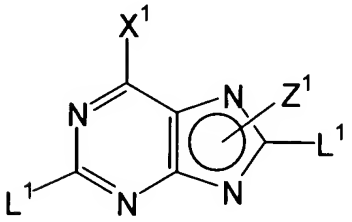
wherein

X^1 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom,

Z^1 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus, and

one of $Y^{1'}$ is a group represented by the formula: $Me_2(OH)C\text{-}C{\equiv}C\text{-}$, and the other $Y^{1'}$ is a hydrogen atom,

or a salt thereof, which comprises reacting a compound represented by the formula (II-1):



(II-1)

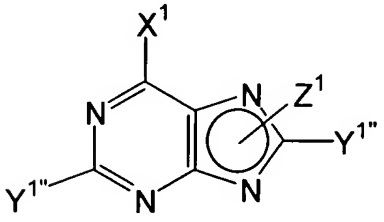
wherein

X^1 and Z^1 are as defined above, and

one of L^1 is a halogen atom, and the other L^1 is a hydrogen atom, provided that when X^1 is a halogen atom, L^1 is a halogen atom having higher leaving ability than the halogen atom represented by X^1,

or a salt thereof, with a compound represented by the formula (III): $Me_2(OH)C\text{-}C{\equiv}CH$, in the presence of a metal catalyst and a base (1),

(b) a step of obtaining a compound represented by the formula (I-1''):



(I-1'')

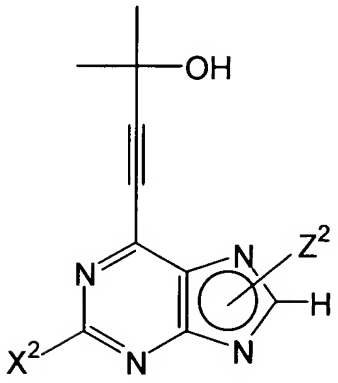
wherein

X^1 and Z^1 are as defined above, and

one of $Y^{1''}$ is a group represented by the formula: HC≡C-, and the other $Y^{1''}$ is a hydrogen atom, or a salt thereof, which comprises treating a compound of the formula (I-1') obtained in the step (a) or a salt thereof with a base (2), and

(c) a step of reacting a compound of the formula (I-1'') obtained in the step (b) or a salt thereof, with a compound represented by the formula (IV): A-X wherein A is an aryl group optionally having substituents or a heterocyclic group optionally having substituents, and X is a halogen atom, in the presence of a metal catalyst and a base (1).

12. (Original) A production method of a compound represented by the formula (I-2'):



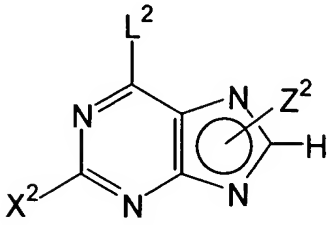
(I-2')

wherein

X^2 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom, and

Z^2 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus,

or a salt thereof, which comprises reacting a compound represented by the formula (II-2):



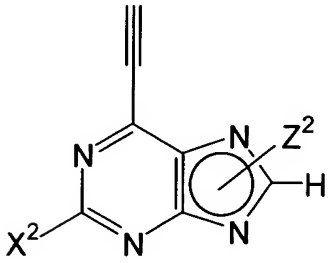
(II-2)

wherein

X^2 and Z^2 are as defined above, and

L^2 is a halogen atom, provided that when X^2 is a halogen atom, L^2 is a halogen atom having higher leaving ability than the halogen atom represented by X^2, or the same halogen atom as X^2, or a salt thereof, with a compound represented by the formula (III): $Me_2(OH)C\text{-}C{\equiv}CH$, in the presence of a metal catalyst and a base (1).

13. (Original) A production method of a compound represented by the formula (I-2''):



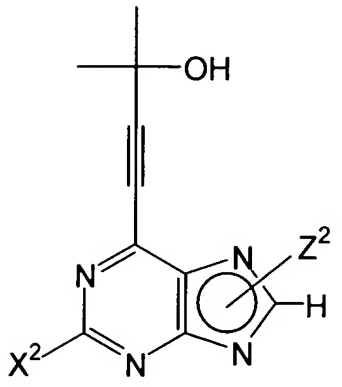
(I-2'')

wherein

X^2 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom, and

Z^2 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus,

or a salt thereof, which comprises treating a compound represented by the formula (I-2'):



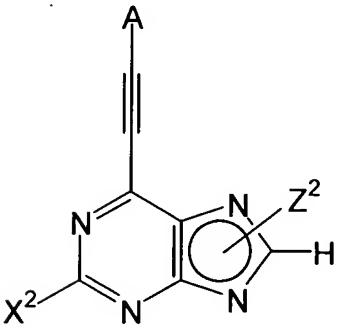
(I-2')

wherein

X^2 and Z^2 are as defined above,

or a salt thereof, with a base (2).

14. (Original) A production method of a compound represented by the formula (I-2'''):



(I-2''')

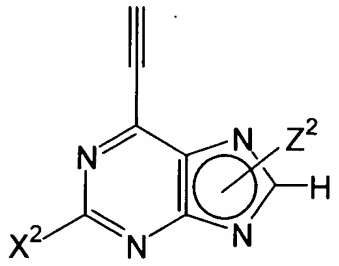
wherein

A is an aryl group optionally having substituents or a heterocyclic group optionally having substituents,

X^2 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom, and

Z^2 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus,

or a salt thereof, which comprises reacting a compound represented by the formula (I-2''):



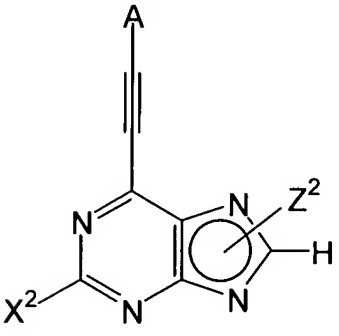
(I-2'')

wherein

X^2 and Z^2 are as defined above,

or a salt thereof, with a compound represented by the formula (IV): A-X, wherein A is as defined above, and X is a halogen atom, in the presence of a metal catalyst and a base (1).

15. (Original) A production method of a compound represented by the formula (I-2'''):



(I-2''')

wherein

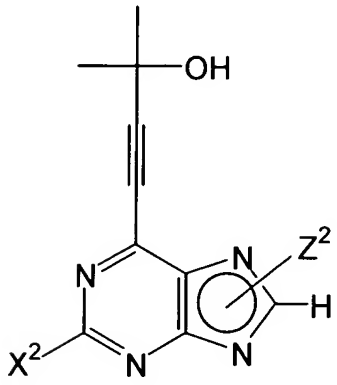
A is an aryl group optionally having substituents or a heterocyclic group optionally having substituents,

X^2 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom, and

Z^2 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus,

or a salt thereof, which comprises the following steps (a)-(c):

(a) a step of obtaining a compound represented by the formula (I-2'):



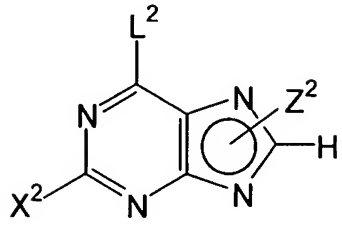
(I-2')

wherein

X^2 is an alkyl group, an alkoxy group, an aryl group, an optionally protected amino group, a halogen atom or a hydrogen atom, and

Z^2 is an alkyl group, a sugar group, an amino-protecting group or a hydrogen atom, which is attached to a nitrogen atom at the 7- or 9-position of the purine nucleus,

or a salt thereof, which comprises reacting a compound represented by the formula (II-2):



(II-2)

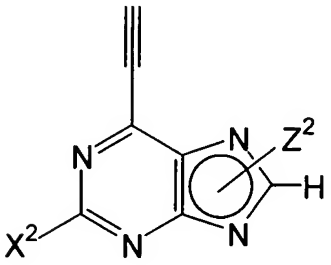
wherein

X^2 and Z^2 are as defined above, and

L^2 is a halogen atom, provided that when X^2 is a halogen atom, L^2 is a halogen atom having higher leaving ability than the halogen atom represented by X^2, or the same halogen atom as X^2,

or a salt thereof, with a compound represented by the formula (III): $Me_2(OH)C\text{-}C{\equiv}CH$, in the presence of a metal catalyst and a base (1),

(b) a step of obtaining a compound represented by the formula (I-2''):



(I-2'')

wherein

X^2 and Z^2 are as defined above,

or a salt thereof, which comprises treating a compound of the formula (I-2') obtained in the step (a) or a salt thereof, with a base (2), and

(c) a step of reacting a compound of the formula (I-2'') obtained in the step (b) or a salt thereof, with a compound represented by the formula (IV): A-X, wherein A is an aryl group optionally

having substituents or a heterocyclic group optionally having substituents, and X is a halogen atom, in the presence of a metal catalyst and a base (1).

16. (Currently amended) The production method of ~~any of claims 8, 10, 11, 12, 14 and 15~~ claim 8, wherein the metal catalyst is a palladium compound.

17. (Currently amended) The production method of ~~any of claim 8, 10, 11, 12, 14 and 15~~ claim 8, wherein the metal catalyst is a combination of a palladium compound and a copper compound.

18. (Currently amended) The production method of claim ~~16 or~~ 17, wherein the palladium compound is bis(triphenylphosphine)palladium dichloride or tetrakis(triphenylphosphine)palladium.

19. (Original) The production method of claim 17, wherein the copper compound is at least one selected from cuprous iodide, cuprous bromide and cuprous chloride.

20. (Currently amended) The production method of ~~any of claims 8, 10, 11, 12, 14 and 15-19~~ claim 8, wherein the base (1) is trialkylamine ~~an amine compound~~.

21. (Canceled)

22. (Currently amended) The production method of claim ~~21~~ 20, wherein the trialkylamine is triethylamine or ethyldiisopropylamine.

23. (Currently amended) The production method of ~~any of claims 9, 11, 13 and 15-22~~ claim 9, wherein the base (2) is alkali metal hydroxide or alkali metal carbonate.

24. (New) The production method of claim 10, wherein the metal catalyst is a palladium compound.

25. (New) The production method of claim 10, wherein the metal catalyst is a combination of a palladium compound and a copper compound.

26. (New) The production method of claim 25, wherein the palladium compound is bis (triphenylphosphine) palladium dichloride or tetrakis (triphenylphosphine) palladium.

27. (New) The production method of claim 25, wherein the copper compound is at least one selected from cuprous iodide, cuprous bromide and cuprous chloride.

28. (New) The production method of claim 10, wherein the base (1) is trialkylamine.

29. (New) The production method of claim 28, wherein the trialkylamine is triethylamine or ethyldiisopropylamine.